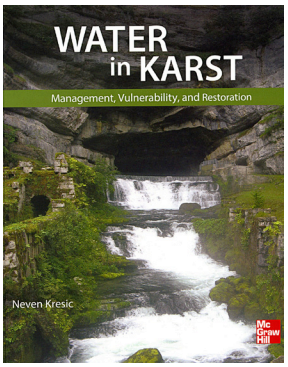
Neven Kresic

Water in Karst: Management, Vulnerability, and Restoration,

New York, McGraw-Hill, 2013. ISBN 978-0-07-175333.3, 19×24 cm, 736 p. + 14 p. of color plates, hardbound, US $125 (also available as e-book)



This book addresses karst groundwater from the standpoint of water supply and aquifer management. In this respect it is closely related to engineering-based books (e.g., Milanović, 2004), rather than those with a more geomorphic emphasis (e.g., Ford & Williams, 2007). Thus the evolution of solution conduits is covered only briefly, whereas their role in transmitting water and contaminants receives detailed treatment. This approach, and the technical background of its author, make this book readily accessible to groundwater consultants and managers.

Dr. Kresic received his Ph.D. from the University of Belgrade (Serbia) and afterward taught there as a professor of groundwater dynamics and hydrogeology. He later moved to America as a Fulbright Scholar at the U.S. Geological Survey in Virginia, and is now a hydrogeologist at AMEC Environmental and Infrastructure, Inc., an international consulting firm. He is also co-chair of the Karst Commission of the International Association of Hydrogeologists.

The book is divided into three parts: karst hydrogeology and hydrology (3 chapters, 392 p.), management of water in karst (6 chapters 153 p.), and vulnerability and restoration of water in karst (2 chapters, 140 p.). It is abundantly illustrated with monochrome photographs, maps, and diagrams, plus 36 color photos and maps bound in the center. It provides field examples from many karst areas throughout the world, especially Europe and America. The author's approach is technical, with theoretical concepts and math applied to practical problems, but he also recognizes the sporting aspects of karst with photos of muddy cavers, shaft descents, etc., supplied by some well-known cave photographers.

All significant topics in karst hydrogeology are covered in well-illustrated detail. The text is clear, well organized, and free of superfluous technical jargon. Scientific terms are clearly explained. Where appropriate, a clear distinction is made between traditional hydrologic techniques and those that are uniquely suited to karst. Site investigations are given broad treatment, with emphasis on data collection, delineation of drainage basins, groundwater extraction, water vulnerability and aquifer restoration. Many case histories are provided. Tools such as pumping tests, flow measurement, hydrograph analysis, dye tracing, geophysical methods, remote sensing, and contaminant monitoring are described, as are numerical and statistical modeling of water supply and contaminant transport. Floods, droughts, and climatic variation are also covered. Special problems in karst are included, such as the problem of defining source-water capture zones, subsidence, and the leakage and breaching of dams. The book ends with a discussion of regulatory issues, remediation techniques, and a welcome discussion of long-term sustainability.

This book will be invaluable to professional hydrogeologists, students, consultants, and regulators. It is well suited to courses that focus on karst groundwater and should at least be on the reading list for any advanced hydrogeology course, not only as a valuable source in its own right, but also to help balance the overwhelming emphasis on porous-medium flow presented by nearly all other hydrogeology books. Kresic speaks the language of traditional hydrogeology and is able to bridge the gap between it and karst science. Starting with familiar groundwater principles, he then steps easily over to karst. In contrast, authors who emphasize karst geomorphology provide the conceptual basis for explaining the evolution of karst groundwater through time. The two approaches complement each other and together they illuminate the full spectrum of karst. **Water in Karst** fits nicely into the applied portion of the field but is also highly recommended to all karst students and scientists.

References

Ford D.C. & Williams P.W., 2007 – Karst hydrogeology and geomorphology. John Wiley and Sons, Ltd., Chichester, U.K., 562 p.

Milanović P.T., 2004 – Water resources engineering in karst. CRC Press, Boca Raton, Florida, 312 p.

State University of New York, Oneonta, 2013

Arthur N. Palmer